

DIGITAL DIGEST

Vol. 6 No. 4

Devoted to Amateur Radio Digital Communications & Technology

Jul/Aug, 1993

In This Issue . . .

The DIGIPEATER

features news and information from a realm of sources on ham radio, computers, software and digital communications...

BITS & BYTES

Wayne Renardson, NZ4W takes a look at our first digital mode with a somewhat historical perspective up to the present with the ways and means utilized to increase throughput...

COMPUTERS & Peripherals

Jonathan L. Mayo, KR3T takes a look at the diversified menu of digital products offered by MFJ...

REVIEWS

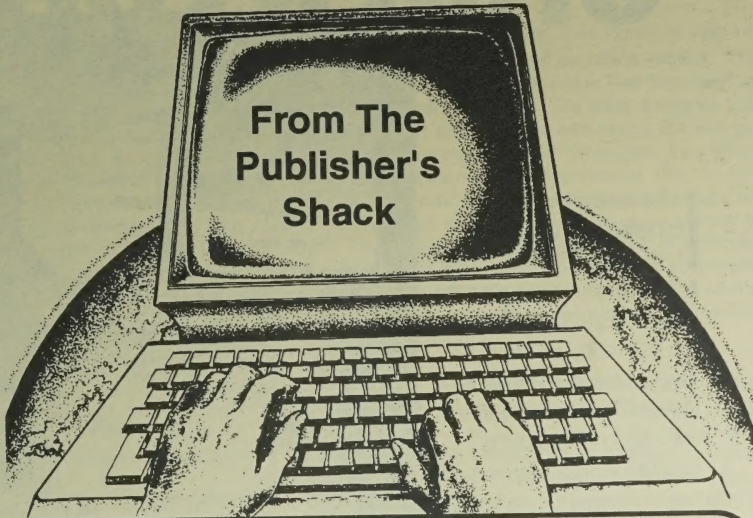
Wayne Renardson, NZ4W opens this column with a book review of "The Hacker Crackdown: Law And Disorder On The Electronic Frontier", a recent release from Bantam Books...PLUS, in a separate article Wayne takes a second look at the 'digital doings' at Dayton '93...

Plus info on:

- Free Software
- Contesting Software
- New Product Releases

& more!

From The Publisher's Shack



Tuning across the digital portions of the ham bands sure shows a massive increase in activity... especially on pactor. Now that all of the major manufacturers are offering this mode as part and parcel of their multi-mode interface, and have relatively inexpensive upgrades for your pre-pactor controller... joining the pactor bandwagon is pretty painless — and a heck of a lot of fun.

My own actual operating activity these past few months has been limited due to business considerations and a shortness of staff due to summer vacations... hence also, another late Digest. Hopefully we'll be able to get back on track with the next issue and enjoy more 'on-air' excursions in the digital realm. So without further delay we'll get this issue to press and will look forward to seeing you on the digi-modes...

73 & Enjoy, Tom / WA8DXD

DIGITAL DIGEST

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DSP-1232 as no new hardware or modifications will be needed as new modes become available.

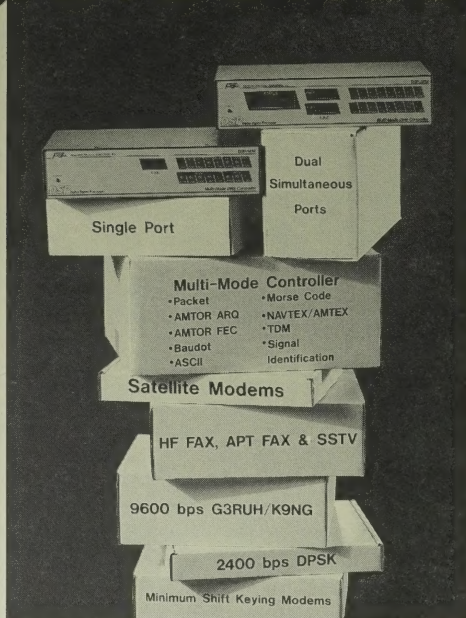
Whatever you've thought about doing in Amateur radio, it's here in the DSP-2232 /1232. All PK-232 MBX modems (Packet, AMTOR, etc.). All satellite modems (PSK, 4800 bps PACSAT, G3RUH 9600 bps, UO22 equalized, 400 bps OSCAR-13). Analog modems for HF FAX, FAX APT, and

SSTV. 9600 bps K9NG/G3RUH for terrestrial and satellite use. Each also offers internal RAM for up-loading modems, up to 36 simultaneous packet connections, EPROM up to 2 Mbits, software selectable radio ports, Mailbox accessible through both ports, dedicated printer port, RTTY digital noise gate, ARQ tolerance command, etc.

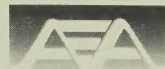
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* Bootleg cable converter boxes have become so adept at decoding scrambled cable TV signals that one major manufacturer has come out swinging with an entirely new version.

General Instrument's VideoCipher II, which has been broken over the past few years, has been updated to VideoCipher II Plus. This will involve replacing several thousand cable boxes, at no cost to legal viewers.

The original VideoCipher was not fool-proof because, according to experts, it was too easy for pirates to sneak in between the security links and steal the special codes required for descrambling the signal. VideoCipher II Plus incorporates all the security links within one integrated circuit in each box, making it much more difficult to access the data.

But other cable box manufacturers have their own ideas. Scientific-Atlanta, Jerrold and Zenith just released their own versions of low-risk descramblers, and the power they contain is impressive.

Intel 386 microprocessors and all-digital circuitry allow cable operators to change codes and features by simply downloading new commands into the system.

—*Broadcasting & Cable, June 14th and July 5th, 1993*

* The world of compact disc technology has not been idle. Sony says that soon we may see 1.5-gigabyte storage on a single 2.5-inch magnetic disk, using CD technology. They claim 200 megabytes of storage on such a disc already.

In addition, the world's major consumer electronics companies have teamed up to create a worldwide standard for storing linear video material on CD's. This effort took place to avoid a "VHSvs.-Beta" struggle.

Digital compression techniques now allow a full hour of video to be stored on a compact disc, and the new standard will allow the same disc to be played on a wide variety of units.

—*Design News, June 21, 1993*
and *Broadcasting & Cable, July 5, 1993*

* AMSAT-NA President, Bill Tynan (W3XO) today announced two new Vice Presidential appointments.

Keith Baker (KBISF) was appointed as Vice President for Strategic Planning. Keith will work closely with Board members and others to attempt to come up with a long range plan for AMSAT after completion and launch of Phase 3D. As many may know, Keith is also an active member of the Phase 3D Development Team, responsible for planning and scheduling. So perhaps, this additional new assignment naturally follows.

In a simultaneous move, Tynan also appointed Bruce Croskey (WA6JCD) as Vice President for Development ...which can be freely translated as "Fund-raising". Bruce is a long time AMSAT member and is active on the satellites. He brings to his new AMSAT position a long history of experience in sales and promotion.

On July 10, Bill Tynan W3XO joined Keith Baker (KBISF), Bruce Croskey (WA6JCD), Bill Pasternak (WA6ITF) and Forrest Oden (N6ENV), and Charlie Justinak (W7GBI) at the Phoenix, Arizona home of Senator Barry Goldwater (K7UGA). Also present was a cameraman from Phoenix Channel 12. The purpose of this assemblage was to re-shoot some of portions of the Phase 3D video tape made by Senator Goldwater last year. This was, of course, necessitated by the configuration change forced on AMSAT by the European Space Agency.

In addition to getting the desired footage

with the new model of the space-craft constructed by Start Wood (WA4NFY), Senator Goldwater added many kind words for AMSAT and its work.

The revised version of the tape, which will also include footage being taken in Germany this summer of the construction of the full scale engineering model of Phase 3D, will be available for distribution this fall.

* The Chicago Sun-Times of July 14, 1993 (p. 14) had an article entitled: "Too Much Static Kills Bid to Ban Scanners" by Fran Spielman. The story suggests that an anti-scanner ordinance did not get enacted. It said 'Alderman Lawrence Bloom (5th) convinced the Police Committee to endorse a substitute bill that will make it illegal to use a scanner to 'aid or abet the performance' of a criminal act after receiving 'dozens' of letters and phone calls from 'amateur radio operators' who objected to the original mobile scanner ban."

* Glen Baxter, K1MAN, reports that one of his International Amateur Radio Network volunteers in Somalia, Sam Voron (VK2BVS) was issued Somalia Amateur Radio License No. 1 on March 29, 1993 with the call sign 6O0A. Authorized frequencies include: 1.5-1.8; 3.850-4.0; 7.1-7.5; 9.3-9.5; 21.45021.900; 25.9-26.1; 26.96-27.41; 88108; and 416-420 MHz. Television broadcasts may also be conducted on any unused standard VHF or UHF television channels!

(cont'd on page 14)

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BITS & BYTES

by Wayne Renardson, NZ4W

1113 Woodvale Dr. • Nashville, TN 37204

Zen and The Art of Morse Code ...with apologies to Robert M. Pirsig



High-speed CW is fascinating to many digital operators. Laying claim to being the original digital mode, CW has both fervent adherents and its share of detractors. But no matter what you think, CW at high speed manages to attract a large group of otherwise sane people, and it is high-speed CW that continues to fascinate significant numbers of amateurs.

The original motivation to attain higher speed was economic. The first CW operators, working for Western Union or other commercial message-passing businesses, were not motivated to enhance the state-of-the-art nor aid the public when other communication services were unable to function. Since they were paid by the word, it was the desire for profit that drove the professional CW operators to increase throughput by shortening words, thus sending the traffic at a higher rate of speed. The 1879 Phillips code standardized such words as before to bf, subsequent to sb, and permanent to pr, allowing the operators to send more words by reducing the number of elements (bits) necessary to convey meaning. Amateurs further enhanced the Phillips code by not only developing their own set of abbreviations, but also by adopting the ship-to-shore Q signals, a series of three character symbols that stand for much longer statements/questions. In addition to increasing speed, Q signals allow people who understand different languages to carry on limited conversations.

CW operators also increased their throughput by improving their mechanical sending devices, from straight key to bug to electronic keyer with precision paddles, eventually developing digital keyboards, the ultimate in accuracy and high-speed for the sophisticated CW operator. Each change was greeted with cries of derision, met with resistance, or otherwise boo-hoed by those defenders of the status-quo. In addition to increas-

ing accuracy and speed, the sound of the code was also altered, requiring the receiver or listener to change the way they perceived the language. And to many people, change was anathema, to be resisted at all cost.

When the PC became commonplace in the shack, often replacing a dedicated keyboard like the Info-Tech M 300-C, the Skipjack, the Microlog boards, or the MFJ and Heathkit units, CW operators had become accustomed to hearing near-perfect code, and the PC merely allowed the CW operators to expand their horizons into Packet, AMTOR, RTTY, and other digital modes. But for many, high-speed CW, like their first love, would continue to claim their affection.

After publishing an op-ed piece in QST (June 1991, p 81) about the joys of high speed CW and the benefits of sending it with a keyboard, I received a number of readers' letters asking for help to achieve higher copying speeds in the head. Many readers obviously did not understand the distinction, since some erroneously thought I was writing about copying CW on a computer screen, which was not at all my intention. I have also spoken with a number of amateurs who would like to copy CW at higher speeds (20+ wpm) but who, for several reasons, find themselves unable to achieve their goal. Based on my experiences, I think there are some common problems that are easily rectified by following a few simple guidelines.

When novice operators begin copying CW, they usually use a pencil or pen, writing down every character they hear. This is because most novices are apprehensive about making their first few CW contacts, and they want to insure they do everything correctly. So they write down the other operator's name, QTH, rig, antenna, and whatever else they are able to copy. Once their speed increases to say, 10-12 wpm, and their confidence

risks, they are able to carry on conversations of some substance, discussing items of mutual interest. When I was at that stage of development, I used to work many female operators since they had cleaner fists and were better spellers than the old men I used to hear. My impression then—and it still holds true—is that females were fundamentally better operators than men, not for speed (which, for whatever reason, attracts the males, excepting that world-class speed demon Flo Majorus, W7QYA), but for the most important CW paradigm, accuracy. I used to have conversations about music, which my Nashville location tended to evoke, and about poetry and literature with women who were usually more interested in books than antennas and Hartley oscillators. At first I wrote down every word they said. The pencil was my crutch, always sharp, and busier than a butterfly in heat, making sure I wrote down every word, since by this time, still unsure of myself, I had come to depend on committing it to paper. Much mental energy was expended transferring the sound of the code from my ear to the tip of my fingers where my pencil would dutifully be scribbling away, regardless of how germane it was to the ideas under discussion. As time passed and my ability to copy faster CW increased, I discovered that I had leapt from copying characters into the world of copying words, and it is what occurs during this transition that is most important. Let's suppose you are an average CW operator who copies somewhere between 15-25 words/minute. You would like to increase your speed by 10-15 words/minute. The prime limiting factor I found among such operators was their use of the pencil. They clung to it like a bee to honey, afraid if they, like Linus, gave up their security blanket, the world would come to an end. All the intellectual and physical energy required to write down the words was being utilized doing just that instead of using the energy elsewhere—to copy faster CW. As I suggested to an aspiring CW operator I met at Dayton this year, there is no one person whose every word is so important that you should waste your time and effort writing all of them down. Use the energy for more productive things.

I used to discuss music on 40 meter CW with Jody, a woman in Ohio. One day we were talking about Reba McEntire and



her then current hit, Cathy's Clown, an old Everly Brothers' tune. Jody told me she could not stand listening to Reba's warbling voice and that she was much more interested in Kathy Mattea and other women performing country music. This was written down as "RM's warble-clown-likes Mattea etc" and those few letters were enough to allow me to remember the gist of her remarks so I could continue my end of the conversation about various women emerging in the field of country music. The point is this: you should discard dependence on the writing and use the energy to listen to the CW, become involved in the music of the Morse, and not worry about copying everything. Your ability to copy faster and faster CW will increase quickly with a mind that is devoted to the substance of the conversation instead of the trivia involved in writing everything down. Devote your energy to listening and enjoying the code, not wasting it by writing superfluous letters.

On the sending side, use a keyboard, and by that I mean any keyboard, either a stand alone or your PC. Use the inside of your head for copying CW, for it is inside the mind that the joy of CW resides, and never, ever, read CW from a monitor or video screen. Serious CW operators refer to those who copy CW on a computer screen as Video Cadets, not exactly a term of endearment. Besides, what goes on inside your head is far more interesting than anything you will ever discover on a monitor or video screen.

My first dedicated keyboard was a dumb terminal from Info-Tech, the M-300C, that would generate Baudot, ASCII, RTTY and Morse codes. It cost nearly \$400 real dollars circa 1980. I was also playing with the Microlog 6800 and the AIR-1, and there were dozens of high-speed CW operators on 10-80 meters using other boards, some of which were attached to TRS-80s, Vic-20s, and Commodore 64 computers. What was interesting about the operators was the fact they were all sending accurate, fast, clean, easy to listen to and enjoy, Morse code, making it a pleasure to copy their conversations. And they were conversations, not two monologues. Many operators were using Ten Tec rigs with their fine QSK. Instead of hearing two monologues with station A sending while station B listened and then station B sending while station A listened, QSK allowed the operators to interject comments, ask questions, ask for clarification of points, or just to say what they wanted when they wanted to say it, which more resembles people discussing any issue and is more life-like. QSK is a great thing. It is a pity more CW operators, who usually have it on their transceiver, do not make better use of it.

Last issue I mentioned seeing MFJ's new 451 CW keyboard at Dayton and hoped to use one to report on the product. The 451 and accompanying keyboard arrived May 5 as I was returning from a long trek around Nashville's streets on that fine, sunny day. Looking forward to a chance to return to 40 meter CW and renew old friendships with some of the high speed operators I used to chat with, I removed the board from the sturdy shipping box along with the cable that attaches to the 451, a 4.5 x 3.5 x 1.25 inch box that contains keying and other circuitry. I read the enclosed twelve-page, clearly written manual that contains instructions and a function key quick reference chart, including a full-page schematic for the tinkerers among us. The keyboard is a full-sized AT compatible 101 with 12 F keys, a numeric key

pad, arrow keys, print screen, page scroll, and pause keys, in addition to caps lock and alphanumeric keys, all made by Mitsumi of Japan. The output from the keyboard travels the length of the supplied 5 pin cable as input for the 451, which is MFJ's contribution to the system. The output travels via a standard RCA plug which connects to the keying input of the user's transmitter. The 451 requires a 12 volt DC 250 milliamp power supply jacked into a 2.1mm coaxial plug. MFJ supplied their optional MFJ-1315 DC unit, available for those who want a separate power supply.

The system has a 200 character type-ahead buffer and two 100 character message memories. The speed range is 5-99 wpm with the weight or ratio between dots and spaces ranging from 5-95 percent. Weight is an important factor when using high-speed Morse since there is a relationship between speed and weight.

Timing ratios in CW often follow the International Morse Code standards shown below. Times shown are based upon the time of a single dot:

dot	1
dash	3
element space	1 (space between consecutive dots or dashes within a character)
character space	3 (space between consecutive characters in one word)
word space	7 (space between words)

Changing the weight modifies the element space to dot ratio from the standard 1:1, giving the sent Morse a different rhythm. For example, if there were nine different weight settings, the ratios might look like:

Weight	Element space/dot ratio
1	1.5
2	1.3
3	1.2
4	1.1
5	1
6	.9
7	.7
8	.6
9	.5

Weight on the MFJ keyboard is changed by pressing the F4 key and listening to a series of dot-dashes over the side tone. The weight is altered by pressing the up arrow key to lengthen the on time of a dot or dash and shorten the off time. The down arrow key shortens the dot or dash length.

Removing the cover from the 451 to inspect its innards, I found a circuit board containing three ICs and an EPROM chip, along with various resistors, caps, and connectors. The CPU is an 8-Bit Intel P-80C32-1. MFJ includes a complete parts list for those who want to replace or experiment with different chips or component values. A 1.25 inch speaker for the side tone is mounted

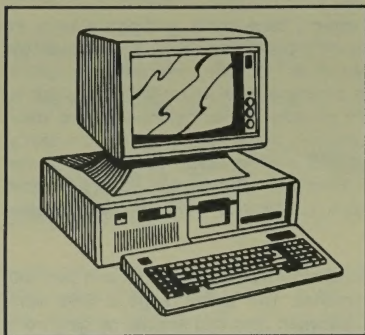
(cont'd on page 10)



COMPUTERS & PERIPHERALS

by Jonathan L. Mayo, KR3T

208 W. Hamilton Ave., Ste. 125 • State College, PA 16801



MFJ PRODUCTS

As you may recall, I formerly wrote an IBM Arena column published back in the March/April 1992 issue that covered the Kantronics line of amateur radio digital communications equipment. In that column, I mentioned that I might do future columns of a similar nature featuring products from other companies if interest warranted. Since there was sufficient interest, I've gathered product information from several other companies. This issue's "Computers & Peripherals" column covers products from MFJ, and future columns will be dedicated to the offerings of other companies.

Past Column Topics

But, before getting started with my overview of MFJ products, I'd like to briefly review the topics that have been covered in former IBM Arena columns in past issues. As you may have noticed, past issues of Digital Digest have alternated between three columns. Now, commencing with this issue, rather than have a DSP, a Computers, and an IBM Arena column in varying issues, topics on these and other matters of interest will fall under one column. This arrangement will allow me to pass along information on a variety of topics while at the same time reducing the amount of time I have to spend preparing for each issue of Digital Digest.

This IBM Arena column made its first appearance back in the May/June 1990 issue of Digital Digest, so 1991 was the first full year for IBM Arena. Hopefully,

you've found IBM Arena a useful source for information on amateur radio applications for your PC. Before progressing with this issue's main topic, I'd like to briefly review the topics covered in past IBM Arena columns.

May/June 1990 — An Introduction to the MS/PC-DOS World of Computing

July/August 1990 — Amateur Radio & The PC

September/October 1990 — The Coprocessor

November/December 1990 — A Preview of Things to Come

January/February 1991 — The Computer Controlled Ham Shack

March/April 1991 — More on Portables

May/June 1991 — No IBM Arena appeared in this issue due to scheduling problems

July/August 1991 — Interfaces For Your PC

September/October 1991 — New DOSs and Memory Management - Part I

November/December 1991 — New DOSs and Memory Management - Part II

January/February 1992 — New DOSs and Memory Management - Part III

March/April 1992 — Kantronics Products and the HP 95LX

May/June 1992 - No IBM Arena appeared in this issue

July/August 1992 — Dayton report

September/October 1992 — No IBM Arena appeared in this issue

November/December 1992 — No IBM Arena appeared in this issue

Most IBM Arena columns have dealt with the hardware aspects of computing, both in general and amateur radio specific. In the future, I hope to cover more software, both here in "Computers & Peripherals" as well as stand alone reviews. Please let me know if you have any favorite software for your PC that you find of value in amateur radio applications.

MFJ Products

In this section, I cover the full range of MFJ's amateur radio digital communications equipment. Keep in mind that the following product descriptions are not reviews; I have not evaluated the products. Rather, these descriptions are derived from product literature, specification sheets, and catalog copy provided to me by MFJ for use in preparing this column.

MFJ-1225

The MFJ-1225 (see Photo A) is a receive only computer interface for an IBM compatible or Commodore 64/128 computer. The 1225 will copy all RTTY shifts and speeds, and copies on both mark and space. Uses a sharp 8 pole active filter for 170Hz shift and CW. A built-in tuning indicator can be used with all modes, and a normal/reverse switch eliminates the need to retune for inverted RTTY. The 1225 lists for \$69.95.

MFJ-1224

The MFJ-1224 (see Photo A) offers the same features as the 1225 with the addition on transmitting capability, and lists for \$99.95.

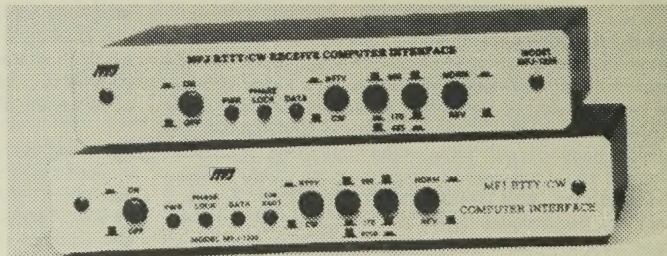


Photo A — The MFJ-1225 RTTY/CW receive-only interface (top) and MFJ-1224 interface (bottom).



MFJ-1270B

The MFJ-1270B is a TAPR TNC clone (see Photo B). The 1270B is fully TAPR TNC-2 compatible. All software and hardware designed for the TAPR TNC-2 standard works without modification. It comes with VHF and HF modems as standard equipment. It also features a built-in personal mailbox that will auto forward or reverse forward mail to and from other BBSs. The mailbox memory is expandable to 32K, 128K, and 512K.

The 1270B also has a WEFAX mode and a KISS interface that lets you run TCP/IP. The 1270B comes with 32K RAM, 256K ROM, speaker jack, lithium battery backup, RS-232 and TTL serial ports, and a radio cable. The 1270B lists for \$119.95.

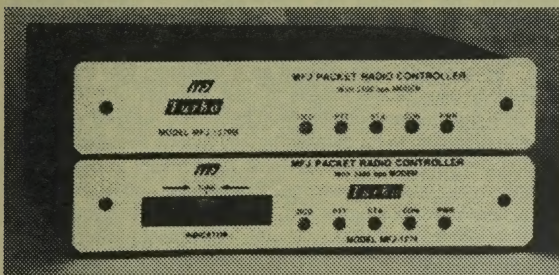


Photo B — The MFJ-1270BT 2400 baud TNC (top) and MFJ-1274T 2400 baud TNC (bottom).

MFJ-1274

The MFJ-1274 (see Photo C) is the same as the 1270B but has a tuning indicator for HF packet operation and lists for \$139.95.



Photo C — The MFJ-1274 TNC.

MFJ-1270BT

The MFJ-1270BT (see Photo D) is the same as the 1270B with the addition of a 2400 baud modem that allows users to operate packet at 300, 1200, and 2400 baud. The 1270BT lists for \$209.95.

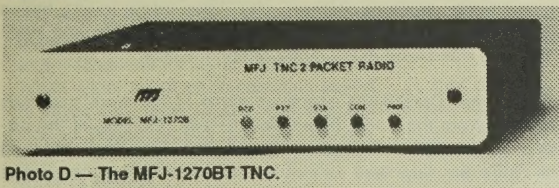


Photo D — The MFJ-1270BT TNC.

Starter Pack

MFJ offers starter packs (Photo E) designed to help new owners of MF TNCs get on the air quickly. The packs come with an interface cable and software for various microcomputer platforms. The MFJ-1284 pack is for IBM compatibles. Other models are available for the Commodore 64/128 and Macintosh. All starter packs lists for \$24.95.



Photo E — MFJ Starter Pack

MFJ-43 Real Time Clock

The MFJ-43 real time clock sets the TNC clock automatically each time the TNC is powered up. The \$29.95 clock plugs into the TNC's RAM socket.

MFJ-1271

The MFJ-1271 is a packet modem designed to plug into the cassette port of a Commodore 64/128 computer and works in conjunction with the Digicom/64 TNC software package. The 1271 lists for \$49.95.

Pre-Wired Radio Cables

MFJ also offers prewired radio interface cables for use with MFJ TNCs, AEA's PK-232, AEA's PK-88, and Kantronics' KAM along with Icom/Yeasu HTs, Kenwood HTs, and Yeasu, Icom, Kenwood/Alinco 8-pin radios. Check with MFJ for the appropriate part number for a particular combination. All cables list for \$14.95.

MFJ-1214PC

The MFJ-1214PC (not shown) is a multimode computer interface that operates FAX, WEFAX, RTTY, ASCII, and CW. The WEFAX mode lets you receive weather maps in 16 gray levels. The 1214PC can transmit and receive full color FAX photos. The 1214PC comes with the unit, software, radio/computer cables, and power supply. The 1214PC works with VGA, EGA, or Hercules graphics equipped IBM compatibles and lists for \$149.95.

MFJ-1214AM

The MFJ-1214AM is the version of the 1214PC designed for use with the Commodore Amiga computer. The 1214AM also lists for \$149.95.

(cont'd on page 11)



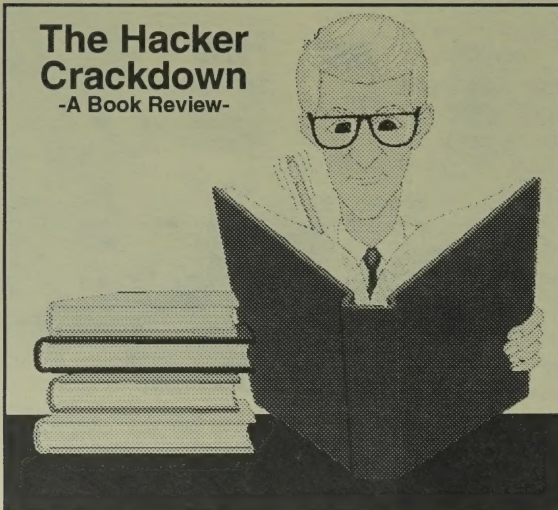
REVIEWS

by Wayne Renardson, NZ4W

1113 Woodvale Dr. • Nashville, TN 37204

The Hacker Crackdown

-A Book Review-



As people engaged in communications as an avocation in the amateur radio service and often as a vocation, we are keenly aware of any attempt to place restrictions on our activity. As U.S. citizens, we are accustomed to having the freedom to read, write, view, and transmit information without undue government interference or censorship that limits either the content or method we choose to convey information from one person to another. Most of us accept minimal restrictions placed on speech, the word "fire" shouted in a crowded theatre as the most frequently cited example. As long as the government is reasonable, citizens generally accept the few limitations placed on them by law and social convention. But disturbing trends are developing between the government and the citizen in the world of digital communications. As digital communications, still in its infancy, matures and becomes more widespread, first amendment issues of free speech and the government's desire to control the digital domain continue to arise. Has the government already gone too far? Is there reason to believe we should be concerned about individual privacy?

I first became aware of the government's raid on Steve Jackson's gaming business when I was prowling around cyberspace on a Nashville land-line BBS one evening. The abbreviated story of the government's raid and subsequent treatment of Jackson was posted on an echo. Reading it chilled me as it should anyone interested in digital communications, freedom of expression, and the role the government of our country continues to play in the emerging digital technologies. One overview of such issues can be found in *The Hacker Crackdown: Law And Disorder On The Electronic Frontier*, a recent release from Bantam Books. Written by Bruce Sterling, the book briefly traces the development of the telephone from 1876 and the early fone phreaks through its marriage with the computer. Digitizing TelCo switching system gave hackers and other users entry into cyberspace, that electronic world occupied by those on the cutting edge of the new digital communications technology. The book claims to be the first to present both sides of the issue—from the perspective of the law enforcement officer and the hacker.

The early telephone systems competed with the Morse code operators of Western Union whose 214,000 miles of wire and 8500 telegraph offices sent messages that left written records, were capable of being transmitted over greater distance than the voice, and were deemed better suited for America's emerging commercial and business enterprises. But the telephone, with its open access via public telephones and increased distance, triumphed. From the beginning, the individual may not have owned a telephone, but it was possible to gain access to the system through the public telephone, found in corner drug stores and other businesses who wanted to attract customers.

Open access was a given from the beginning, and it is this philosophy that guided the early computer hacker ethos. Information was power, and to deny anyone the freedom to have any information was considered reactionary or even criminal. The computer was viewed as a liberating tool that would potentially give people access to vast amounts of information. To stifle that human potential from becoming realized was seen as anti-progress, to be derailed by any means possible, regardless of the consequences. Systems were meant to be open so people could share knowledge. Passwords, codes, PIN numbers, serial and copy protection, encoding data, and scrambling, were all viewed as challenges to the benevolent hacker community and anathema to the pursuit of knowledge for its own sake. The community was often driven by intellectual and spiritual motives, not material gain, so hackers believed they occupied the high moral terrain. Of course, not all hackers were so idealistic. Some hackers learned to break laws and invade other computers, often causing no physical damage but sometimes using credit cards to obtain goods illegally. Some lawbreakers became hackers, trying to rip off the system in any way possible, motivated by greed and their lust for m-o-n-e-y.

Trouble in the TelCo began early, and it turned out to be sexually related. In 1878, Alexander Graham Bell's fledgling company hired teenage males to serve as switchboard operators. These young men were "openly rude to customers, talked back to subscribers, saucing off and uttering facetious remarks, including giving lip." But what really rankled Bell's officials were such pranks as disconnecting calls or crossing lines so customers would be talking to total strangers. They were finally removed from the system and replaced by females, who viewed the job as one of considerable responsibility. It also allowed them to escape housework or a career in nursing, some of the only occupations available to them. But these same young males would return with a vengeance when later the PC became available and was linked to the digital telephone lines.

The Hacker Crackdown examines some of the more notorious hackers from the Youth International Party (Yippies) of the sixties. Led by Abbie Hoffman, author of *Steal This Book*, the theft of TelCo services was viewed as an act of civil disobedience against the bourgeoisie, capitalist system that was fomenting the colonialist war in Viet Nam. Their newsletter, at first Party Line and later Technical Assistance Program (TAP), provided readers with techniques to rip off the TelCo. Steve Jobs and Steve Wozniak (The Two Steves), founders of Apple Computer, once sold the notorious blue boxes that would give users long-distance access, and Ramparts magazine was seized and suppressed by California police in June 1972 for publishing the



schematic to let homebrewers create a mute box. Such is the awesome power of the telephone company. The seizure of Ramparts magazine was one of the first shots fired in the war between the government and those who believe that our elected officials should not be in the business of suppressing information.

The Jackson case is the best known and the one to which Sterling devotes considerable time. In order to understand the ramifications, a bit of background is necessary. Steve Jackson did not write computer game programs, as is often believed. Steve Jackson Games, his business, created and sold so-called simulation games that were played the old-fashioned analog way, with pencils on paper, dice, and printed guidebooks to help the players navigate games. The games did not require a computer, but Jackson did have computers in his business for payroll, letters, and the usual activities involved in running a small enterprise. He also ran a land-line BBS called Illuminati, one of whose hundreds of users was Mentor, a writer for Phrack magazine, a rag devoted to the computer underground and hacking. Mentor was also a target of the government since they believed he purloined an E-911 system document from the TelCo and placed it on Illuminati. But it was the Jackson game CyberPunk, merely a book, that attracted the most attention, and was the source of rumors about the Secret Service raids on Jackson Games.

The term cyberpunk originated with William Gibson's sci-fi novel, *Necromancer*. The cyberpunk writers involved in the current movement consider themselves punks in that they have an air of bohemianism about them—youth run wild, a mood of deliberate rebellion, peculiar dress and hair, fringe politics, and a fondness for loud, obnoxious rock 'n' roll—just those characteristics bound to shock bourgeois society, including the United States Secret Service (USSS), which has jurisdiction over computer crime in the US.

Armed with a search warrant, the Secret Service raided and confiscated not only Jackson's computers but also his books, papers, and other documents pertaining to his business, including the game/book CyberPunk stored on his machine. The warrant had been sealed so there was no

way to know what the agents were seeking. But when Jackson went to the Secret Service the following day to ask for the return of his book, the Secret Service told him it was a manual for computer crime and refused to release it to him. Jackson was led to believe that the raid was carried out because he intended to publish a book on computer crime regarded by the legal system as too dangerous to print. This rumor was printed in numerous publications and appeared on BBSs across the country. When the warrant was unsealed by Jackson's lawyers many months later, they discovered that the USSS obtained it hoping to find the stolen E-911 document on his BBS, and there was no mention of the CyberPunk book, hacking, or any other illegal material. While Jackson was never formally charged with a crime, his business was ruined and he was forced to fire most of his employees.

The point of view from the law and order side of the equation is best exemplified by Gail Thackery, assistant attorney general for Arizona, who specializes in computer crime. "Credit cards didn't used to cost anything to get," she said. "Now they cost forty bucks—and that's all just to cover the cost of rip-off artists." To the legal establishment, computer hackers are parasites who drain resources, time, and money from people but give nothing in return.

The civil libertarian viewpoint is represented by Mitch Kapor and the Electronic Frontier Foundation (EFF). Kapor, the co-inventor of Lotus 1-2-3, has been in the forefront fighting the establishment over first amendment and libertarian ideals, eventually defending Steve Jackson which gained him and the EFF a wrongly-deserved reputation as defenders of hackers and criminals.

In light of recent events, there is always cause for concern. In a move that worried privacy experts, software manufacturers, and telephone companies, the FBI proposed legislation to amend the Communications Act of 1934 to make it easier for the Bureau to perform electronic wiretapping. The proposed legislation, entitled "Digital Telephony," would have required communications service providers and hardware manufacturers to make their systems tappable by providing back doors through which law enforce-

ment officers could intercept communications. Furthermore, this capability would have to be provided undetectably, while the communication was in progress, exclusive of any communication between other parties, regardless of the mobility of the target of the FBI's investigation, and without degradation of service.

The security risks are obvious: If law enforcement officers can tap into a conversation, so can others with harmful intent. The privacy implications are also frightening. Today, all sorts of information about who we are and what we do, such as medical records, credit reports, and employment data, are held on electronic databases. If these databases have government-mandated "tappability," this private information could potentially be accessed by anyone. To add insult to injury, the FBI proposal suggests that the cost of providing this wiretapping "service" to the Bureau would have to be borne by the service provider itself, ultimately meaning you and I will be paying higher user fees. Anyone with an appreciation for irony might find this amusing if it were not so frightening.

The Hacker Crackdown will give anyone with an interest in digital communications a wider perspective on the issues framing the debate evolving around individual rights and the role of law enforcement and the government in our cyberspace. The book is available from Bantam Books, 666 Fifth Avenue, New York, NY 10103 for \$23.

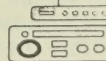
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(cont'd from page 5)

on the bottom of the cover with volume controlled from the front panel of the unit. Speed, tone, and weight are all controlled from the keyboard. The rear panel contains jacks for a separate iambic paddle if you prefer using the 451 without the keyboard, and one for an external speaker.

Hooking the system up takes only a few moments, and I was soon on the air with Paddy Lyles, W9LOH, and Mike Chalveras, AA4WT, who can be found hovering around 7.062 MHz from 1200-1300Z nearly every morning, come rain or come shine. I asked Paddy and Mike if they would listen to my reference setup and compare the keying at various speeds (10-50 wpm) and weight variations (a scale of 1-10) to determine any differences. My reference is a 386DX/25 with 8 MB RAM running the PK-232MBX using PK PakRatt II v5.1 software and an old OMNI D transceiver, a first rate CW machine with QSK that works. My keyboard is an MMG 101. I sent quick brown fox several times to give them a reference point and then switched to the MFJ unit. Both Mike and Paddy told me the MFJ sounded cleaner and produced a note that was easier to copy than the reference. As we talked about Paddy's recent job switch and Mike's plans to rent a cabin for a group from Nashville, I switched between my reference and the MFJ, pausing long enough to inquire about the various speed and weight changes from each setup. All told, the MFJ keyboard sounds clean and accurate.

The side tone frequency (300-3300 Hz) is adjusted by the F2 key, while the speed is controlled by the F3 key. There is serial numbering available for testers, and even the ability to use the space bar as a straight key for the nostalgia buffs or Straight Key Night operators among us.

The making of prosigns is more complicated than necessary. Roger Frith, N4IBF, tested the unit and suggested that the 451 uses an awkward method to make a break or BT prosign. Depressing the ALT key removes the intercharacter spaces, so in order to make a break, it is necessary to press the ALT key and then the B and T keys. Considering the frequency of use of the break prosign, this is a cumbersome way

to accomplish the task. Overall, Roger declared the keyboard a winner, easy to use, even for a non-typist.

From the user's perspective, the board is solidly built with keys that have a slight but unpronounced click. One of the most important features of a keyboard is its space bar, which is pounded more than any other key. The space bar on the Mitsumi is fast, and its response time (time it takes for the space bar to execute the space or low position and return to its original at-rest position) was a bit quick for me, but I also type about 60-70 words a minute and for a slower operator it may not present a problem.

It's gratifying to see once again a reasonably priced piece of equipment made available to those who want a dedicated CW keyboard or a spare to carry with them for remote Morse operation when a PC would be too cumbersome. Available from MFJ, P.O. Box 494 Mississippi State, MS 39762 for \$89.00. Their toll-free number is 800-647-8324, Fax(601) 323-6551 Telex: 53-5869 MFJ STKV. □

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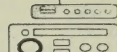
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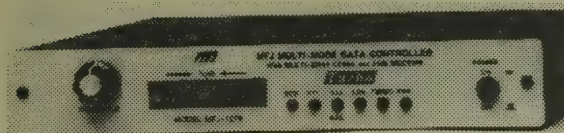


Photo F—The MFJ-1278 multi-mode interface.

MFJ-1278

The MFJ-1278 (see Photo F) is a multimode interface featuring nine modes, including color SSTV and 16 gray level fax. The 1278 can operate packet, AMTOR, RTTY, ASCII, CW, FAX, SSTV, Navtex, and as a contest memory keyer. The 1278 includes 32K RAM, power supply, KISS interface for TCP/IP, independent transmit level for each radio port, random code generator, lithium battery backup, RS-232 and TTL serial ports, tune up command, programmable message memories, dual radio ports, CW jack, speaker jack, and packet connect bell. The 1278 lists for \$279.95.

MFJ-1278T

The 1278T (not shown) is the same as the 1278 with the addition of a 2400 baud modem. The 1278T lists for \$359.95.

Conclusion

I hope you've enjoyed this issue's look at MFJ's amateur radio digital communications products. MFJ can be contacted at P.O. Box 494, Mississippi State, MS, 39762. Or call (800) 647-1800.

As always, feel free to contact me with your comments, suggestions, and questions. I prefer E-mail to CompuServe 72276.2276, Internet 72276.2276@compuserve.com, or Prodigy SCSD46C.

Free Mac DX Software

I have converted "Minimuf", the original DX path-forecast program written for DOS machines, to the Macintosh. I also improved it, adding easy-to-use, Mac-style pull-down menus plus a series of more than 30 preset locations, both DX and stateside. I compiled the code into machine language, so it's fast as lighting. You can enter other locations not among the presets, if you know their latitudes and longitudes.

Best of all the software is free. Just send me a self-addressed, stamped disk mailer and a 720K disk (not a 1.44 Meg one) for a free copy along with documentation.

Send to: Bob Stamper, K4CFV, 12510 Shadowrun Blvd., Riverview, FL 33569

—ARNS (from the January '93 Silicon Valley Emergency Communications System (Santa Clara Valley, CA) "Repeater-Don Gaubatz, W6GJF, Editor)

The End of an Era!

The end of an era! With an emotional last transmission, the U.S. Coast Guard closed down Morse code operations on 500 kHz on July 31 st at OOOZ. Coast Guard radiomen have been monitoring the 500 kilohertz radio frequency for distress signals since the turn of the century and in 1924 set up its first radio station to monitor the frequency continuously.

The advent of satellite and digital technology have now made Morse code obsolete on the high seas. A misty-eyed Coast Guard radioman tapped out the following final good-bye message on 500 kHz:

"CQ DE NMC NOW CLOSING DOWN CONTINUOUS WATCH ON 500 KHZ AND CEASING ALL MORSE CODE SERVICES IN THE MF BAND. AS WE CONCLUDE OUR WATCH ON 500 KHZ, WE WISH THE MARITIME COMMUNITY FAIR WINDS AND FOLLOWING SEAS. WE ARE PROUD OF OUR TRADITION AND LONG STANDING SERVICES ON MF WHICH IN 1901 WITH THE REVENUE SERVICE ACTIVELY EXPERIMENTING WITH WIRELESS AS A REGULAR MEANS OF COMMUNICATIONS ON LAND AND SEA TO THE FIRST INSTALLATION ABOARD CUTTER GRANT IN 1903.

OUR FIRST DISTRESS CALL FROM AN AMERICAN SHIP WAS RECEIVED ON 10 DEC 1904 BY RELIEF LIGHTSHIP 58 AT THE NANTUCKET SHOALS STATION. THIS CONSISTED OF THE WORD "HELP" FOLLOWED BY A REQUEST FOR AID. BY ACT OF CONGRESS ON 4 MAY 1910, EVERY PASSENGER SHIP AND ANY OTHER SHIP CARRYING 50 PERSONS OR MORE, LEAVING ANY PORT IN THE U.S. WAS REQUIRED TO BE EQUIPPED WITH RADIO.

NECESSITY FOR IMPROVEMENT IN APPARATUS AND METHODS WAS EMPHASIZED WHEN OVER 1,500 LIVES WERE LOST IN THE TITANTIC DISASTER OF APRIL 1912. SINCE THEN, THE COAST GUARD HAS FAITHFULLY AND DILIGENTLY LISTENED TO 500 KHZ, COPYING AND RESPONDING TO NUMEROUS CALLS FROM MARINERS IN NEED OF ASSISTANCE AT SEA. WE HAVE ALSO PROVIDED YOU WITH THOUSANDS OF URGENT, SAFETY AND NAVIGATIONAL WARNINGS AND RELATED CW ASSISTANCE OVER THE YEARS. WE NOW LOOK FORWARD TO SERVING YOU ON THE NEXT GENERATION OF COMMUNICATIONS EQUIPMENT AND SYSTEMS VIA THE GLOBAL MARINE DISTRESS AND SAFETY SYSTEM (GMDSS).

FROM ALL COAST GUARD RADIOMEN AND WOMEN, WE BID YOU 73. DE NMC QRU CL AR SK . . (Dit Dit) 2351Z JUL 31 1993

Ships at sea responded with "good luck" and a final CW "good bye."

--W5YI Report



the vision to guide it through these changing times. I believe I have the vision, courage, and insight to make a significant contribution to the hobby and the ARRL."

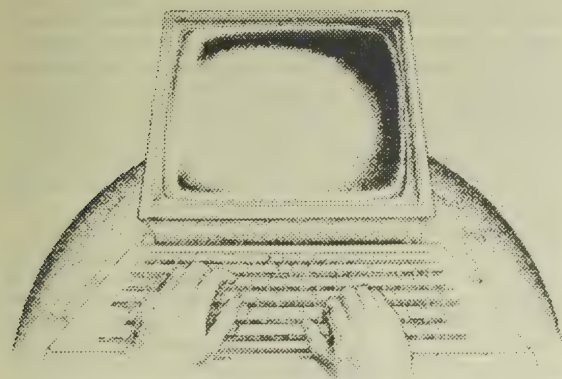
I also agree it is time for a change and hope ARRL members in the Delta Division will consider marking their ballots for Jack Hill, W4PPT, when they vote this fall.

<<<<<<>>>>>>>>

Nerd Alert...As your observant reporter of all things concerning nerds for Digital Digest, the nerd revolution has begun. Actually, it started with a movie, *Revenge of the Nerds*, which I highly recommend for its insight into the nerd mentality and the joy to be found in watching a group of nerds get revenge on fraternity jocks who made life miserable for the much maligned nerds. For the rest of us, Prentice-Hall Computer Publishing announced their series of no-nerd books, including volumes for DOS, Windows, OS/2, and PCs, priced at \$18.95 each. Simon & Schuster Publishers, who own Prentice-Hall, believe that people who were intimidated by computers called anyone who could figure out an autoexec.bat file a nerd or a geek. So, the nerds and geeks hoarded information. When they shared it with the public it was obtuse and extremely technical. Novice computer users often gave up because they couldn't grasp the depth of the writing with its jargon and technobabble.

These books promise to provide readers with catchy icons (sounds like Windows to me), including one they call Nerdly Detail—information that normal computer users want to know. They just don't want to hear it from a geek. Put on your thickest glasses and await a review of "DOS for Non-Nerds" in a future column. If you simply cannot wait that long, contact New Riders Publishing, 11711 N. College Ave., Suite #140, Carmel, IN 46032 or via land line 1-800-428-5331.

q



If you have news and information of interest to digital amateur radio community, please be sure to let us know!

Digital Meanderings

excerpts by Bill Snyder, W0LHS
from his column *The Digital Bus - Worldradio Magazine*

In a recent column I mentioned looking back through old logbooks and how it triggered reminiscing in my old age. I also made a short plea for you new amateurs to use those blank pages in your log books as diaries for notes of ham events, equipment changes, etc. You'll enjoy those pages when you become a coot, codger or geezer (I don't know which category I fit into) in your old age.

I have a file drawer containing a big stack of logbooks accumulated from 60 years at the CW key or the RTTY keyboard (sorry, very few pages with phone QSOs listed). So, every now and then I page through them and get a kick-start on reminiscing. It's oldster's fun and I usually wish I had written more about those good old days. This is also true when I browse through my airplane logbooks. I wish I had put more memory-stimulating remarks in those books, also.

I once kept a large flight planning map on which I traced all the airplane trips I made in the Cessnas I owned. It was quite a picture to see all the spokes that radiated out of Hector Field in Fargo. It, too, was a memory tickler but, alas, it got ruined in a business move and was tossed out with the waste paper. It was easy to keep up when I took a minute to mark each new trip as soon as I completed it. However, today it would take a long time to reconstruct, so I don't do it.

My column on logs brought this comment from WSIV, Clint Spaar, of Westmoreland, New Hampshire. Clint says: "I just started keeping my log on computer, and you certainly can't add that personal touch. I do still fill out my QSL cards by hand versus computer labels." Let that be a clue to the guys who write the programs for logging QSOs on a computer. Why not design the computer code so a person can add a bit of "diary-type" remarks to each contact? A long list of call signs is great for statistics, but it ain't much for memory shocking stuff. I have kept data like solar flux numbers and equipment changes, but I would like it better if I had kept more notes about hamfests, visitors, etc.

Cynosure stuff

I edit a newsletter called the Cynosure. It's a 24-page quarterly for my high school alumni association. Our school burned down in 1966 (I graduated in 1935) and was never rebuilt. Instead, two new schools were erected and put into operation. We have about 4,000 dues-paying members of the association and I have been making a list of all the alumni who are Amateur Radio operators. In a recent issue of the Cynosure I listed times for an alumni net which meets at 0900 on weekends. I put it down as 0090. Right away I received a phone call complaining about my lousy proofreading. Then came more phone calls, letters and packet messages all asking me what time I meant when I said the net meets at 0090 Pacific time. If my readers can't figure it out, they'll have to wait three months for the next issue.

(cont'd on page 14)



(cont'd from page 13)

Russian packet

I recently found a very interesting packet "bulletin" message on my BBS. It was entitled: MIR @ AMSAT. It originated with UA3CR @ RK3KP.#MSK.RUS.EU, and it dealt with all the call signs held by the Russian MIR astronauts.

There have been 26 different operators in the space vehicle using derivations of the call sign U4MIR. The Amateur MIR space station began back in 1987, and in addition to Russian hams, there have been ops from England, France, Germany and Austria in that spacecraft, too. The message also included a list of MIR amateurs who will be circling the globe in the future. The forecast includes the year 1994.

The message also listed the following address for exchanging QSLs with the MIR folks: RV3DR, Serge Samburov, Space QSL Manager, Chief of Cosmonaut Amateur Radio Department, NPO "Energia," P.O. Box 73, Kaliningrad-10, Moscow Area, 141070, Russia. I can't remember how I sent my QSL card to U4MIR (I should have made a note in my logbook). I do remember, though, that it took about three years before the answer arrived through the ARRL regional system. Anyway, I got it!

More packet traffic

If you follow this column you know that I solicit packet traffic from readers. I enjoy swapping messages with hams around the world. I've recently traded messages with DK4IP @ DB0GE.SL.DEU.EU. It is always interesting to read the headers and note the path the message has taken. The last message from Paul in Germany, for example, made relays through five German stations, then hopped to 4XIRU.ISR.MDLE where it was sent, I believe, by satellite to N0GIB in South Dakota. After that it made a routine 2M relay to me.

It never ceases to amaze me how great this packet system is getting, yet how lousy it works some of the time. In the same day's packet mail was a message from G0RKJ @ GB7PLY.#44.GBR.EU. Rich, N7CXB, is another American living in the UK. It also came via the satellite gateway to the same station in South Dakota. It traveled, however, from

GB7PLY to EI2HH.#WFOR.IRL.EU to EI6EH.#KELLS.IRL.EU where it must have boarded the satellite link to SD.

Tom Hagerman of Fort Pierce, Florida, N0DST @ KB4VOL.#WPBFL.FL.USA.NA, started reminiscing when he read a recent column in which I told of trips to St. Paul to get my ham ticket from the FCC office there. Tom goes me one better with this story: "I recall my first FCC test, too. It required a car trip to the edge of town, a bus into town, a street car ride many miles to downtown St. Louis, and then a long eight-block walk to the federal building. All that, alone, at 10 years old. It was kinda scary then!"

I complain quite often about packet messages that evaporate during the long trip to North Dakota. The state of the art should be better than what we are getting. After all, we put a lot of money and time into our hobby, and some days the packet relay system just barely makes it. Bruce Frahm, K0BJ, of Colby, Kansas, and I correspond via packet on a hit-and-miss schedule. Here's the opening line of Bruce's last message to me: "Bill, the path to you has let me down four times in the past few months. I've been having good luck with an old college buddy in Washington state through APLINK." What I gather from Bruce's message is that we're having an evaporation rate of four out of five tries! That's not good, is it!

I answer every message that comes into my BBS. If you don't hear from me after you mail me a packet message, you can blame evaporation, not me. I may be slow in answering QSL cards by postal mail, but I make a daily effort to answer 811 packet messages. If you want to see the routing that your packet mail takes to get to my shack, let me know and I'll put your message header in my return to you.

One side effect of looking at the header trail of relays is that you will see how many computer clocks have lost or gained a day or hours. Note to SYSOPS: check your computer dock for the right time and date now and then.

New computer blues

I just bought a new 486-DX2 computer for my writing and desktop publishing. I should say I ordered two new computers

but only kept one. The first one came with 4 megs of dead memory and the tower case not properly aligned. It was impossible to fit accessory boards into the slots, so back it went for a refund. The second tower, from a different vendor, came with a Sony CD-ROM installed; however, it did not use a "caddy" to hold the compact disk. In computer use, CD caddies protect the disks from rough handling. In ordering the computer, I innocently assumed that all Sony CD-ROM machinery would use caddies (I've owned two external CD-ROM Sanyos that did use them), but I was wrong. So the CD-ROM player goes back, but I think I'll keep the computer. My old 386 just crawls when compared to the new speed demon.

by Bill Snyder, W0LHS

—The Digital Bus, Worldradio Magazine

(cont'd from page 3)

* The free ride is will soon be over! Electronic messages from the mammoth Internet will no longer be delivered free to all commercial electronic mail users.

The Internet is the ever-expanding non-commercial "network of networks" which is subsidized by the U.S. Government. It is primarily used by business, government and educational institutions.

Most commercial E-Mail services charge only the sender - not the recipient. At least one E-Mail service (CompuServe, Inc.) accepts Internet mail (which is posted virtually free) but delivers the mail with a 15¢ "postage due" tag. MCI-Mail and AT&T's EasyLink are also looking into ways of recovering the cost of carrying Internet traffic.

We also understand that CompuServe will shortly be introducing a new "reverse the charges" E-Mail service. The end user (rather than the sender) pays the "postage"- even on totally commercial electronic mail.

* Even the White House is "on-line." Pres. Clinton is thinking adding Internet capability to every library in the country so every citizen will have access to it.

The NTIA is seeking \$51 million to underwrite various networking pilot projects for



schools, hospitals, libraries, museums and state and local governments.

The administration will not construct, own or operate a government network that competes with commercial facilities. Instead, the administration plans to purchase or lease telecommunications services from the private sector.

* Radio and television broadcasters are very concerned about the new FCC proposed radiation exposure regulations. The April 1993 NPRM establishes two exposure standards: one for "controlled environments" (for workers) and the other for "uncontrolled environments" - usually the public. The public area guidelines are five times more stringent than controlled environments.

Low powered hand-held devices are affected as well as high powered broadcast transmitters. If adopted, many of the nation's broadcasters will have to take corrective action to reduce public exposure.

The FCC is even proposing to require additional information concerning "environmental impact" on all license renewals. So far, there seems to be little impact on the amateur service, but it could happen! Comments close Aug. 13.

* WordPerfect's new Version 6.0 for DOS offers some nice features for newsletter editors. It features both a standard text and a brand new graphics mode. Present users can upgrade for \$129 (although the street price from a reseller is around \$85.)

The graphics mode uses new quick access "Button Bars" that resembles "windows" and scalable internal fonts with WYSIWYG capability. There is even built in grammar checker and spreadsheet software.

Reportedly the Orem, Utah, based private company, is set to go public. WordPerfect began operation in 1979 and now has some 4,500 employees and sales of nearly \$600 million!

* IBM is poised to take advantage of Microsoft's problems with their MS-DOS 6.0 operating system. "Big Blue" just introduced a new PC-DOS 6.1 with improved (they say) data compression technology and memory management. Many MS-DOS 6.0 users say they have experienced lost and corrupted data with the DoubleSpace data compression utility.

Microsoft's CEO, Bill Gates believes that cable companies are in the best position to compete on the Clinton administration's digital information superhighway. He is talking with cable companies about forming an alliance to provide multimedia and interactive products for future digital systems. In short, Microsoft wants to set the standard for interactive TV.

And a three year investigation of Microsoft's sales practices by the Federal Trade Commission concluded that they did not violate antitrust laws.

* After a poor profit year, John Scully has stepped down as CEO of Apple Computer and there are rumors of a big employee layoff. He is still chairman, however.

Like Bill Gates, he foresees multimedia and interactive technology as the wave of the future. Scully recently unveiled EZTV setup converter software for all levels of video-on-demand. EZTV's main 'Info Mart' menu provides a template of video service categories.

* Another shining star that isn't shining so well lately is Dell Computer! Their failed notebook strategy caused an \$80 million inventory markdown. Dell stock sank to a low of \$14 - down from nearly \$50 last year! Their 100% growth rate is now down to 55%.

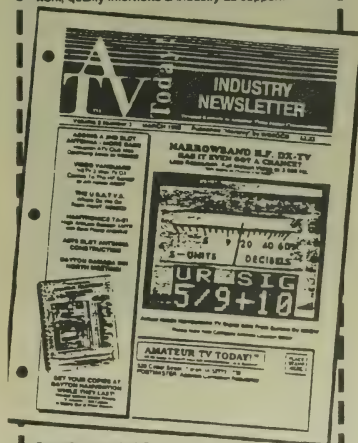
* The ARRL has sent out a massive mailing to members asking for their financial support of AMSAT's Phase 3D Amateur Satellite Project. "The Phase 3D satellite will utilize amateur bands from 10 meters to 10.5 GHz (3 centimeters) and weigh nearly 900 pounds. Once in orbit, Phase 3D will not require sophisticated tracking. The satellites highly elliptical orbit means that it will rise rapidly in the sky and will appear to hang, almost stationary, for several hours at about the same time every other day - perfect for making schedules with simple equipment, even while mobile!"

—W5YI Report 08/01/93



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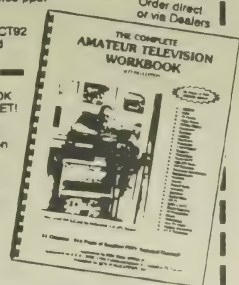
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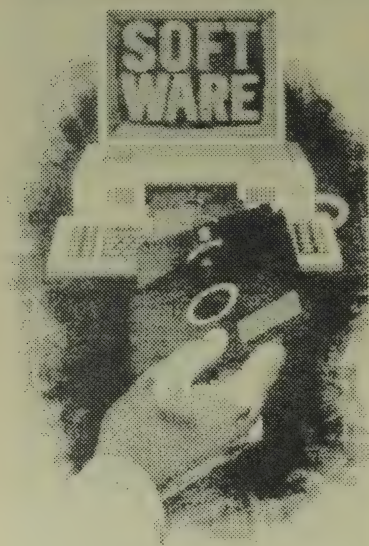
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Back in the dark ages, there were telegraph keys, pencils and country quotas in the ARRL DX contest. Then came commercial tribanders and amplifiers that made it easier to be loud. A lot of people noticed that, as rude as it might seem, they could really make a lot of QSOs by sitting on one frequency and calling CQ. And it was good.

However, the switch from constant tuning around to constant sending highlighted some of the repetitious, boring, parts of contesting which begat tape loops, memory keyers and digital voice keyers.

Meanwhile, out in the real world, IBM begat the PC, which led to Microsoft begetting DOS. DOS was about as user-friendly as most homebrew amplifiers, but compared to flipping toggle switches to load programs, it was the cat's pajamas.

This led to Ken Wolff developing CT to take advantage of the power of DOS, while Dick Newell built PacketCluster to take advantage of DOS and the availability of mass market TNCs. Thus, CT eliminated the tedium of keeping a dupe sheet and doing contest logs, while PacketCluster made it possible to work DXCC without ever having to listen to a radio. And it was good. Sort of.

You see, these technological advances had merely exchanged radio tedium for computer tedium. Contesters spent more

time figuring out extended memory than they had ever spent duping logs. Contesters who didn't know the difference between a byte and a bicuspid (and who didn't care) were forced to spend hours learning the meaning of commands like:

```
DEVICE=C:\WINDOWS\HIRAM.SYS  
/INT15=512/lovehandles=32.
```

Let's not even get into what you have to learn to use your DVP. When K3ZO bought a laser printer, it shook me almost as much as when QST went to the larger page size—it was the end of an era.

But contesters were always power users, willing to fiddle and modify and generally get to know the guts of all their stuff. A few of us were Macintosh weenies, but the proprietary nature of the Mac and the fact that most people were using DOS at work meant that DOS was king of the shack. But, lo and behold, or just behold if lo is a problem, DOS evangelists (almost overnight) embraced a new god—Windows. Those who laughed at the Mac for its mouse, icons and desktop metaphor in 1985 were now spending bucks adding RAM, bigger disks and faster processors to their PCs so they could run Windows 7 years later. Thus, we exchange command-line tedium for config.sys tedium.

Well, this was all a long-winded introduction to a writeup by Ron, W3HXO, e-mailed to me by Jerry, K7UPJ, with some hints and kinks about how to configure Windows 3.1 to work with packet and packet-savvy applications like DXbase. Can CT for Windows be far away, or maybe Windows NT?

Following that is an evaluation of the WF1B RTTY contesting software, written by Chris ZS6EZ. This was trimmed from the March/April issue—there have been some changes in Ray's software since then.

Windows 3.1 Configuration Hints

These changes were made to my Windows sys.ini file (using a text editor) to improve the stability and speed of operation, particularly under Windows 3.1.

A problem with the CMOS clock being permanently changed under WIN3.1 by DXLOG turned out to be a setup option in

DXLOG. It appears that telling it to add 5 hours to local time to relate to GMT resulted in DXLOG adding 5 hours to the CMOS computer clock. WIN3.1 leaves that additive change in place when Alt-Tabbing to another active program and upon exiting DXLOG either through its menu or through the WIN3.1 EXIT WINDOWS command. I also found that the dialog box in the Advanced submenu of the PIF Manager should not have the primitive program close box checked because DXLOG will not start properly the next time when DXBASE is not allowed to close the files it opens (it opens several DB support files having prefix, QSO and other data bases in them). Incidentally, the clock problem did not appear under DOS but it sure was a bother in WIN3.1. The fix is to tell DXLOG to add zero to local time to get GMT. I think DXBASE may similarly screw up the clock in WIN3.1.

At present, I can run the KAM TNC serial port at 9600 bits/second, the landline modem at 38,400 kbits/second, Geoclock (a nice VGA color greyline map), DXLOG the DOS prompt, my word processor, and more in multitask mode. That is, with many of them in background. Even connecting to a telephone BBS and connecting to packet at the same time is working. The stuff appearing below makes a big difference and may clear up sluggish response of the keyboard and problems with crashes and other weirdness. It should also tame the machine at faster serial data rates, where it's otherwise cranky when lots of apps are open at once.

These new commands don't take effect until the next time Windows is started, so don't expect an immediate change if you do the editing from the Windows environment. In fact, changes to the INI files are best done from the DOS prompt using QEDIT, UED, the DOS editor or any other ASCII editor. Don't use Word Perfect5.1 or the like unless you know how to generate a pure ASCII file (no machine language content that is peculiar to the needs of the word processor).

A few things in the boot files can also influence speed and stability, so I have included the salients of the INI info. [The list of unbelievably complicated parameters was too long to include here. Contact W3HXO for detailed information.]



These and similar future changes should always be preceded with some form of retreat option. Any file that is to be changed should first be copied to a floppy, another directory, tape, or a ZIP (or any archiver) file. That way, it is simple to retreat to the original situation. The changes suggested work on more than one machine, but I sure wouldn't want to over-generalize; play it safe and backup first (not the whole drive, just the programs to be changed).—Ron, W3HXC

WF1B RTTY Contesting Software

I know, I know. Packet goes braaap and RTTY goes deedle deedle, but they are both digital modes, RTTY contests are growing and ZS6EZ was nice enough to send in detailed comments on the software, and I had a deadline. So, here are Chris (ZS6EZ) Burger's comments on contesting with the WF1B software:

"I had been using a Tono 9000 in the past, with reasonable success. (I hold the world single-band record in the CQ WW RTTY contest, a score I made using the Tono and paper logs [Are they still allowed? Or do you need to show a disk copy of CT to validate the log, much like you have to show a credit card to cash a check?

This year, I decided to go for WF1B and a used PK-232. The PK-232 is definitely inferior to the Tono from a basic performance point of view, mainly in selectivity and noise rejection. It is particularly bad in the presence of impulse-type noise.

As far as the program is concerned, the basic idea is excellent. However, much of it is not optimized for rapid-fire contesting. It can be set up according to the operator's preference, but it is difficult to vary what is sent according to the skill level at the other end. For example, in a pileup I would prefer to have the ability to send my call as many times as I feel warranted, taking into account the other station's performance. Unless you put leading spaces in the buffer, the software runs your call together when you hit that key multiple times. Worse, the PK-232 crashes when too many buffers are queued. This can be worked around by going in and out of the chat mode (Alt-K),

but this is a major pain.

The WF1B default buffer contents are very long-winded and not suitable for competitive contesting. These can be changed easily but require some thought. The call queue looks like a neat idea, but I found its usefulness limited. I prefer pulling a call straight off the screen with the mouse, then using F2 to send the exchange. This permits more accurate timing and reduced delays.

Activity was slow during the contest, but I had a few spells of 1 to 2 QSOs per minute. This is slightly slower than I used to get with the old terminal, but required orders of magnitude less effort. The typical contact can be concluded with either two or three (when working WVE) mouse clicks. On about 10% or so of the QSOs, you have to type a call and/or an exchange.

The version I used, 2.0.4, had several small bugs. Many have been fixed in subsequent releases, and I have found Ray, WF1 B, to be incredibly cooperative with support. Quite a difference from some other ham software authors.

Results: I smashed the world 15-meter record by 60%, under difficult conditions, and was back to work Monday morning. The logs were in the mail by Wednesday, with a score of 380K (772Q/272/87C/27S.)

The QSLing utility writes directly to the printer. I would prefer it going to a file, a la CT. However, the format is flexible, and you can define your own label format—a big plus. There was no provision for checking previous QSLs sent and the labels come out in chronological order. Ray has said that he is working on these problems.

Major nuisance: there is no provision in the WF1B software to change receive polarity. You have to enter TNC command mode (Alt-T) and then type whatever command your TNC understands, then toggle out of command mode, for a total of eight keystrokes. I have submitted a suggestion to Ray, so maybe future versions will have a better approach.

—By John Pescatore, WB2EEK
NCJ Journal

Marathon: Contest Software for the Mac

Before the current contest season began, I found myself faced with a dilemma. I wanted to enter the world of computer contest logging. Having used CT during several multisingle efforts from K3DI, it seemed the obvious choice. Unfortunately, my wife and I already owned a Macintosh (which was great for everything except contest logging), so I couldn't justify buying a PC solely for contest operation. Fortunately, Kevin Krueger, N0IOS, has stepped forward with a contest program for the Mac called Marathon. I bought a copy and gave it a test drive during the CW November Sweepstakes.

The current release of Marathon supports ten contests including CQWW DX, ARRL DX, and the ARRL November Sweepstakes. Marathon has the standard features that testers have come to expect in even the most basic logging programs (eg, real-time dupe checking and check-partial). In addition, N(E)IOS has included a CW interface, a packet radio interface for connection to the DXCluster, a computer-to-rig interface, and a maintainable country and prefix list for DX contests.

An operator can do some neat things with Marathon. Since the program is built around the Macintosh GUI (graphical user interface), most of the pop-up windows are scrollable and sizable to the way you want them. This means that if you don't like the log window at the bottom of the screen, you're free to grab it with the mouse and drag it to where you want it. You can also pull up most windows at the same time and "stack" them on the screen in any order. This was particularly useful in the Sweepstakes when I wanted to leave the multiplier checklist on the screen. Since Marathon's packet window is scrollable (it holds over 8,000 characters) you can review DX spots that have been pushed off the screen. This could be especially useful when DX spots are coming in a tidal wave during a contest.

(cont'd on page 18)



(cont'd from page 17)

Once you select a spot, a keystroke moves the DX station's call into the log entry window. Frequency and mode can also be grabbed from the packet window when the computer-to-rig interface is active.

The 48-page user's manual provides complete instructions for updating Marathon's country/prefix list. Beam headings and distances are calculated automatically once you supply your Maidenhead Grid Locator. Finally, for those of you (myself included) who think the operating table is crowded enough without a mouse to deal with, Marathon allows the operator to perform nearly all functions with the mouse or keystrokes.

There are a few rough edges. The Marathon CW interface will not directly key the rig. The user must supply an ASCII-to-CW interface (eg, AEA MorseMatic or PK-232). Also unlike CT, Marathon does not filter needed multipliers from the packet window into an announce window. While this wasn't an issue in the Sweepstakes it would be a problem for a serious packet-assisted entry in a DX contest. There is also no facility for doing a super-check partial look-up.

Is this program as good as CT? In my opinion, not quite. However, I like this program a lot. Macintosh users finally have a full-featured contest-logging program that provides nearly all of the features we've come to expect from CT. If you're a Macintosh owner, Marathon is well worth considering.

*Reviewed by David Hubbard, WD41EH
—NCJ Journal*

The Logikeyer

Over the years, I've played around with most of the popular electronic keyer circuits which have appeared in the ham magazines. Recently, however a keyer has quietly revolutionized the ranks of CW ops. Without much fanfare or fuss, the Logikeyer design has found numerous supporters. Several top CW operators are using it, such as N4AR and KBMFO. The unique design of this keyer (a glance clues you in—few knobs or

switches) allows function commands to be sent to the keyer in Morse code with your paddle.

Originally appearing as the CMOS Super Keyer in October 1981 QST and then as the CMOS Super Keyer II in November 1990 QST, this design is now marketed under the Logikeyer name by several firms, including Palomar and MFJ.

I ordered the PC board and kit from Idiom Press and built the keyer. The hardest part was packaging the thing in a suitable, tiny enclosure, and having it look neat. The PC board is 1.4 by 2.4 inches, with one IC, a couple of transistors, and a few other parts. It is the program within the IC that makes this size possible. Construction of my keyer took two evenings of part-time work.

My reaction to this keyer: It's simple and smooth. Once you get used to the function process (years of button-pushing requires a short learning curve of retraining), the keyer is very easy to operate. Most function commands are used once, then the keyer is set to your personal preference. Features include: • lmbic operation and dot and dash memories. • Four 48-character messages. • Loop capabilities for continuous play. • Serial numbering 0-9999. • Adjustable weighting. • Built-in monitor. • CMOS for low power consumption. • Auto character spacing.

And so on, and so on—everything we have come to expect from a keyer and more.

Perhaps you feel that a keyer is no longer relevant in your station, and your old standby works just fine. With the influx of computers and contest software, this idea carries some serious weight today (pardon the pun). If you still use a keyer for day-to-day QSOs, and would like a circuit that can be configured to your whims and desires, and still be used in contests, then this Logikeyer design is worth examining.

*(Reprinted from the Potomac Valley
Radio Club Newsletter) —NCJ Journal*

CW in the Early Days

The Coast Guard recently announced they will stop monitoring the 500-kHz international distress frequency and other CW channels. This set me to reminiscing.

When most people think of wireless, they envision a lonely operator aboard ship or a young ham operating "homebrew" gear. Or perhaps some see a soldier tapping out secret messages in wartime.

But radiotelegraph had many other uses. Much public correspondence passed between countries by wireless, as did international news stories. Domestic applications included a California CW net that disseminated agricultural market data.

In the thirties police departments throughout the country installed radiotelegraph equipment and state police organizations became major users. Michigan, Illinois, Missouri, Ohio, West Virginia, Kentucky, and Indiana each had twenty or more stations. I served with the Indiana State Police, operating on their net during the forties and fifties.

There were also municipal police CW stations—Los Angeles, Phoenix, Olympia, Little Rock, Fort Worth, Milwaukee, Des Moines, New Orleans, and Birmingham among them. The law enforcement agencies operated on nine assigned frequencies in the 2.8, 5.9, and 7.9 MHz range.

I earned my first and only citation during one lonely night's watch. After exchanging traffic with another station, I welcomed the operator back from his vacation—a dozen words, perhaps, at 35 wpm. Things must have been slow at the FCC monitoring station too. We both received "pink slips" for our "personal communications on a commercial frequency."

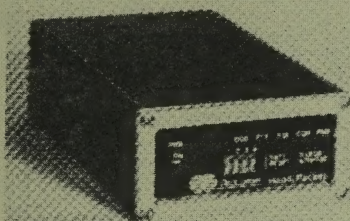
The Coast Guard notwithstanding, CW is still my favorite mode on HF.

*—from the March '93 Santa Cruz County
(California) RAC 'Short Skip'—by Wayne
Thails, KB6KNEditor*



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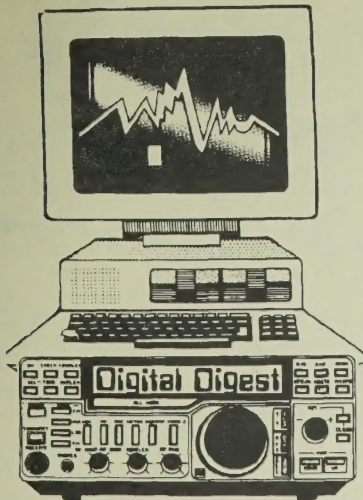
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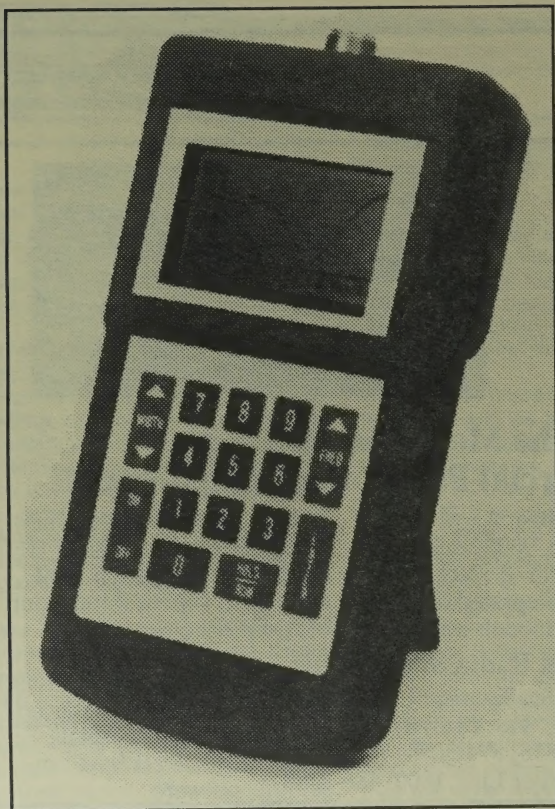
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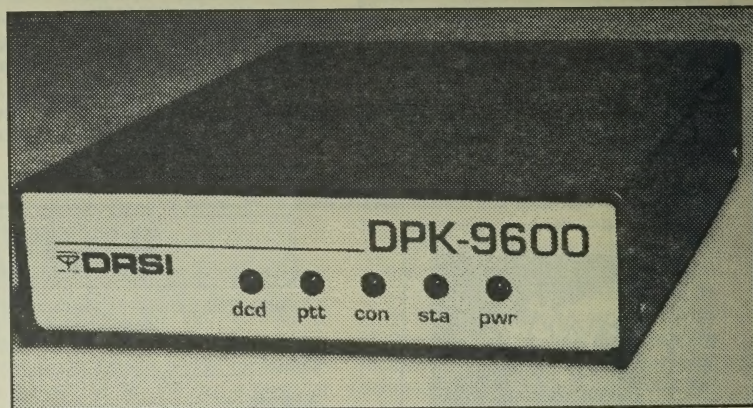
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in older designs, giving the DPK-9600 a tremendous boost in reliability. DRSI also uses low-power CMOS parts in the DPK9600, which not only reduces power consumption, but also contributes to reliability by reducing heat generated during operation.

The DPK-9600 provides 100% code compatibility for any TNC-2 clone firmware. The DPK-9600 is supplied with Version 1.1.8a firmware in the U.S. and The Firmware 2.4c with DAMA for export. It will run all network PROMs with no modifications. The DPK-9600 is 5" wide x 6" deep x 1.25" high and weighs 14 ounces. It uses 50 milliamp 9-20 volts DC. Front panel LED's can be disabled, reducing power consumption to approximately 35 ma. The DPK-9600's Retail List Price is \$249.95.